

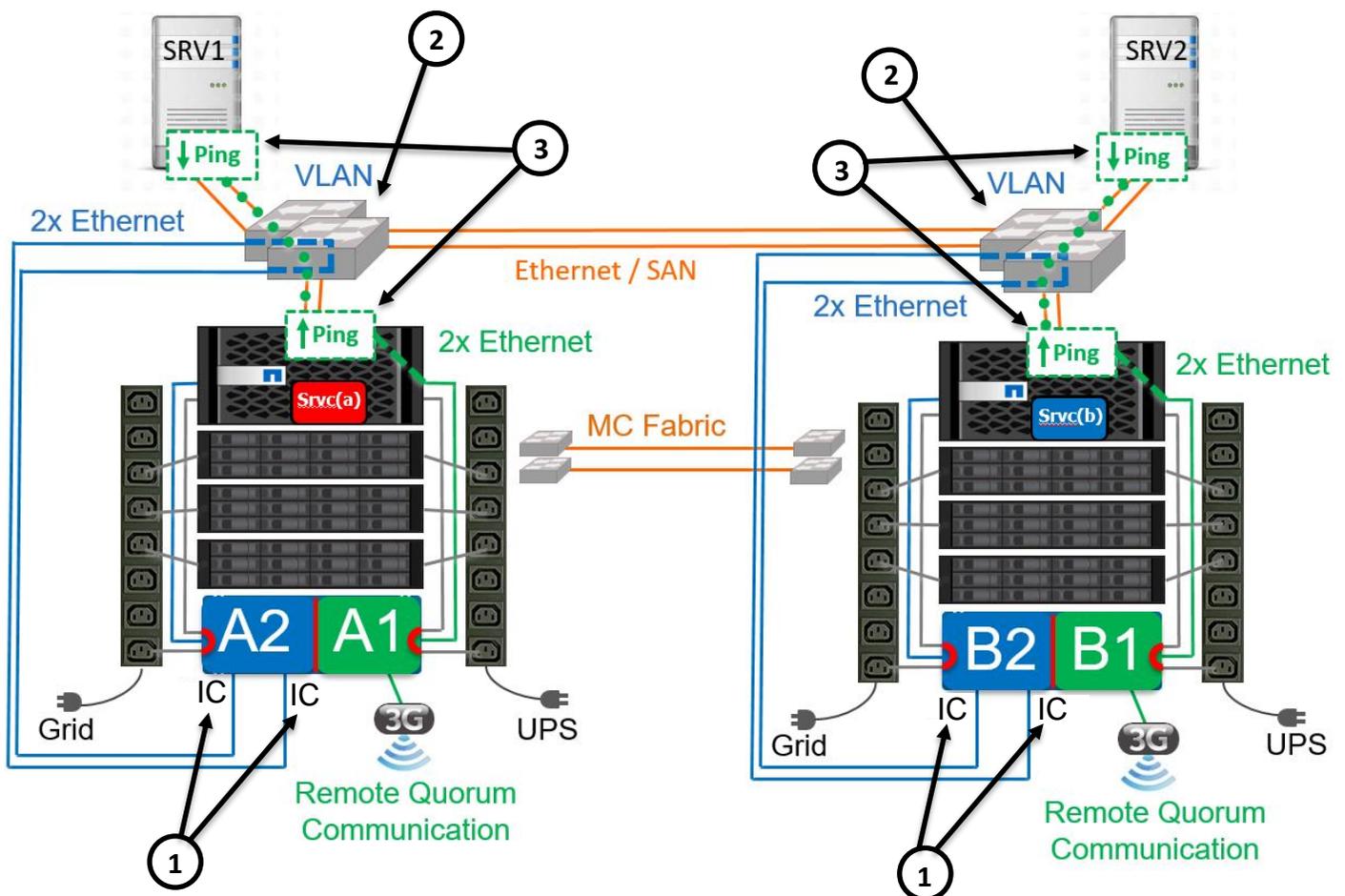


CLUSTERLION NFO IMPLEMENTATION GUIDE

In this manual, you will find a step by step guide and all the necessary information to implement the ClusterLion NFO feature in your environment.

The numbers in brackets are shown in the graphic.

The NFO feature consists of two parts. The first part is an ethernet link, which is established between two ClusterLion ports (1). One or more switches may be incorporated into this route, e.g. Core switches or top-of-rack switches (2). The used ports on the switches must be in a native VLAN and must not have any connectivity to the customer network. If this route is interrupted, since a switch fails, the ClusterLion triggers the first stage for a switchover. The second part is a ping query from the ClusterLion to any IP addresses, e.g. vCenter Server or a host IP (3). Also, at this point, the ClusterLion is not in the customer network because it is only connected to NetApp and from there the ping is triggered. If all IP addresses are not available, the ClusterLion triggers the second stage for a switchover. Only when both conditions occur at the same time, a switchover is initiated.



Please follow these step by step instructions to implement the NFO feature:

1. Please determine one or more switches to be monitored and set up a VLAN route through these switches. Once this route is interrupted, the ClusterLion triggers the first stage. So, on the selected switches, please make two ports available in a native (untagged) VLAN. Please disable spanning tree on the chosen switches.
 - If you want to use only one switch, please connect one of the ClusterLion IC port to one provided port on the switch, the second ClusterLion IC port to the second provided port on the switch. The used VLAN should not be linked to the Uplink Port of the Switch.
 - If you want to use two or more switches, you have to loop through all switches which need to be monitored. Please connect one IC port of the ClusterLion to one native VLAN port on the first switch. Then loop from the second native VLAN port to the first port on the second switch, from the second port to the third switch and so on. The second ClusterLion IC port is connected to one native VLAN port on the last switch.
If you don't want to use native VLAN ports for the connection between the switches, you can also link the VLAN to the Uplink Port.

How this route should be implemented in your network depends on your infrastructure. It is important that a ping is possible between the two ClusterLion IC ports. As soon as the ping doesn't respond anymore, because of any component involved fails, the ClusterLion triggers the first stage. In addition, the ClusterLion should never be integrated directly in the customer network. A connection between the two data centers of the MetroCluster Sites is not needed.

2. Please specify one or more IP addresses, which should be monitored by the ClusterLion. As already mentioned, these IP addresses are not directly checked by the ClusterLion. The ClusterLion connects to the NetApp controller and checks via ONTAP whether the defined IP addresses are reachable or not. To configure these defined IP addresses at the ClusterLion, a configuration adjustment of both AgentBoxes per location is necessary. Please proceed as follows for each box:

- Unplug the USB stick from the AgentBox and plug it into a computer
- Open the file [*config.local.json*] and add the following line, right before the line which describes the end of local configuration file, and insert your IP addresses:
"storageNfoIpAddresses": "<yourIP-1>, <yourIP-2>, ... <yourIP-n>",
- *Example [config.local.json]:*

```
{
  "version": "2017-09-01",
  "DESCRIPTION": "TOP of local configuration file",

  "DESCRIPTION": "BASIC site infos",
  "customerId": "K00000",
  "siteId": "0000",
  "locationId": "1",

  "DESCRIPTION": "STORAGE connection infos",
  "storageUser": "clusterlion",
  "storagePass": "netapp123",
  "storageNodeIp01": "192.168.175.31",
  "storageNodeIp02": "192.168.175.32",

  "storageNfoIpAddresses": "192.168.0.1, 192.168.0.2, 192.168.0.3",

  "DESCRIPTION": "END of local configuration file"
}
```

- Save the file, unplug the USB stick from the PC and plug it into the AgentBox again
- Reset the AgentBox, which is done by unplugging and plugging the PoE cable

Only if all IP addresses are unreachable, a switchover will be initiated.

The implementation of the NFO feature is now complete and ClusterLion is active, also monitoring your network infrastructure!

In case of any questions please contact us at support@clusterlion.com. Thank you!